



How to add wireless charging to Samsung Galaxy S4 mini

This is a tutorial describing attaching wireless charging capabilities onto the Samsung Galaxy S4 mini while keeping charging over cable as an option.

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INTRODUCTION

Some say charging over wireless is just the latest hype, I would say it is a way of keeping an open mind to the technological development.

Alot of phones are beginning to show additions of wireless charging options, while they are becoming more available, there is still the lack of support in the lowend to mid range segment.

This guide is showing how to implement wireless charging on the Samsung Galaxy S4 mini, where the charging pad stays hidden underneath the cover, while keeping NFC, USB port and all other items free to be used.



TOOLS:

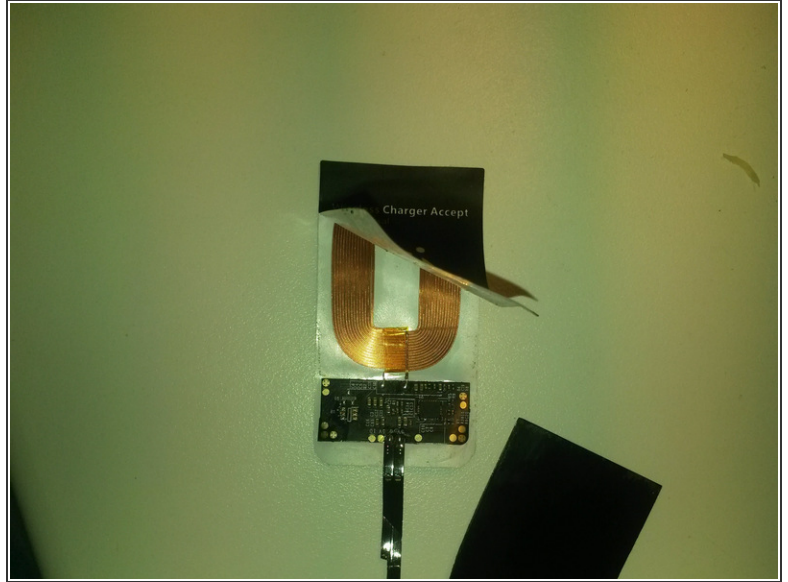
- [Phillips #00 Screwdriver](#) (1)
- [iFixit Opening Tools](#) (1)
- [Tweezers](#) (1)
- [Soldering Station](#) (1)
- [Small saw, file, or Dremel rotary tool](#) (1)



PARTS:

- [Universal Qi wireless Charging reciever pad coil for micro-USB mobile](#) (1)

Step 1 — Preparing the wireless charging pad, in order to fit inside the back cover



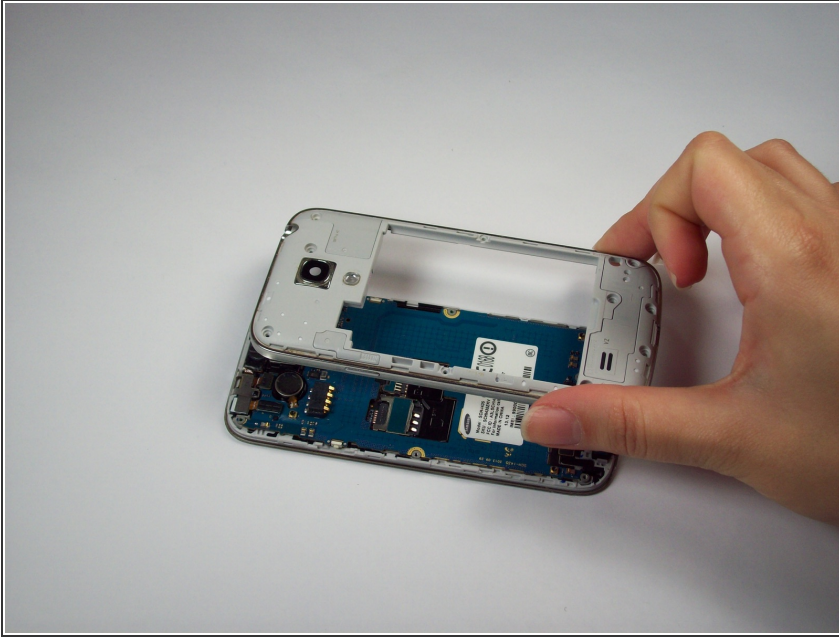
- Disassembling the wireless charging pad, to make it as thin as possible.
- Inside there is a rubber pad, in order to prevent excessive heat dissipating through the back of the charging pad, remove this.

Step 2 — Adding connecting wires to the wireless charging pad



- Soldering on thin flexible wires to the + and - on the wireless charging pad

Step 3 — Gaining access to the internal USB board



- Start by using the [USB board replacement](#) guide, step 1 - 8 in order to gain access to the USB board.

Step 4 — Soldering wireless charging pad onto the USB port



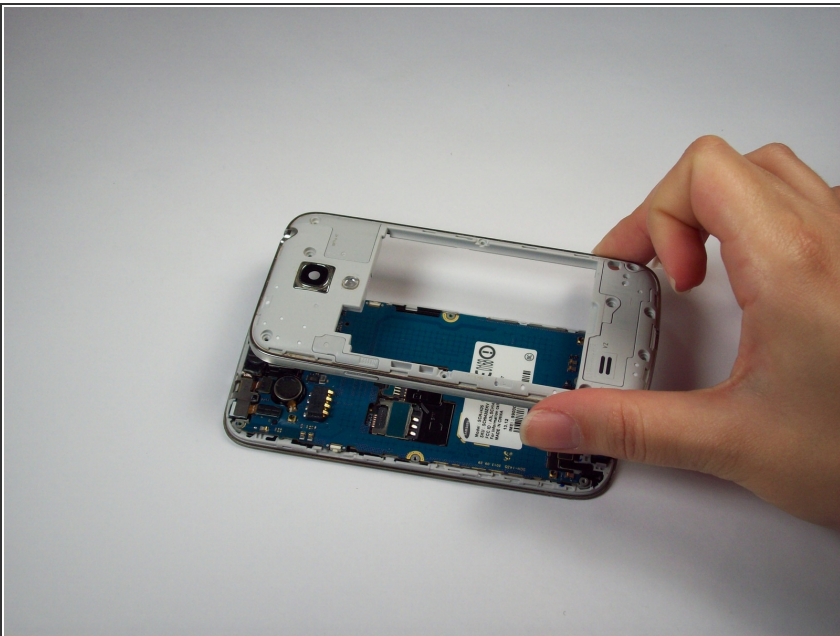
- Soldering the wireless charging pad connection + to CN2 on the USB port and - to the ground on the USB port, any part of the external metal surface should work.

Step 5 — Altering back cover to fit the wires inside the phone



- Use a small file to make room for the wires on the back frame just below where the battery sits.

Step 6 — Placing the back cover once more



- Using the [USB board replacement](#) guide, step 3 - 8 in reverse order to place the back cover, making sure the wires to the charging pad fits through the ready made holes.

Step 7 — Placing wireless charging pad to keep NFC functioning



- Placing the wireless charging pad, slightly off center to keep NFC, which is implemented in the battery, working.

Step 8 — Booting the phone to check everything is working



- Samsung Galaxy S4 mini booting after fitting wireless charging pad.

While one would think, soldering a charging coil onto the charging connections would yield in a shortening of the normal connections to the battery, how ever it turns out the combination is very robust.

The phone will charge without issues on a cable connection, aswell as on the wireless charging pad, and data connection via cable remains intact.

By using the charging pad, the coil do get a bit warm, the insulation material removed in step 1, to make it as thin as possible can have an effect on the heat dissepating to the battery from the coil.

Over my usage of this setup I have not yet come across any miss behaviour of the phone due to the charging over wireless or any other issues arisen from this configuration.

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